

CLIMATOLOGICAL DATA FOR APRIL, 1911.

DISTRICT No. 11, CALIFORNIA.

Prof. ALEXANDER G. MCADIE, District Editor.

GENERAL SUMMARY.

April, 1911, was the coldest April since 1900, and with this exception the coldest since the tabulation of such records began in 1897, and it was also rather a dry month. Compared with April of last year it was much colder, but with a greater rainfall. There was an average number of rainy days, although these occurred mostly during the first decade. It is somewhat difficult to classify the present April, as it belongs neither in the dry class nor yet in the wet class. Nor was it exactly a normal month, as it was too cloudy and too cold to be thus classified. The season as a whole has been a late one, and the month of April showed the influence of some general cause operating over the entire Pacific slope and tending to retard the usual seasonal change from winter conditions. There have been Aprils when rain fell on more than half of the days of the month. Such was the April of 1880. On the other hand, in April, 1857, little, if any, rain fell and a similar condition occurred again in 1909. Entirely unlike the April of last year, when the snow cover in the mountains was of less depth and area than had been known in 40 years, the present April was one of comparatively heavy snowfall, and at the close of the period there was every prospect of an abundant supply of water for the summer months. This means much to the agriculturists, the stockmen, and irrigation and power projects. The forecast can be safely made that the season will be a late one in the mountains so far as travel is concerned, and that many of the mountain passes will not be open before the first week in July, if not later.

April, 1910, was noticeable for its comparative dryness, whereas April, 1911, was distinctly damp, cloudy, and cool. The highest temperature reached at any point in the State was 13° lower than the highest recorded during April, 1910.

No unusually high winds occurred during the month except on the 18th, when a maximum velocity of 84 miles from the northwest was recorded at Mount Tamalpais, 75 miles at Point Reyes and 56 miles at Farallon Island. These high velocities did not last long, and in that respect were unlike the steady and prolonged high northwest winds of May and June, so characteristic of approaching summer in this section.

The most important climatic occurrence during the month was the killing frost condition of April 12-13. Elsewhere will be found an article describing in some detail the effects of the frost in the San Joaquin Valley, and it will only be necessary here to refer briefly to the general conditions and the service rendered by the

Weather Bureau. The weather map of April 12 indicated a rapid rise in pressure with moderate to brisk north winds during the night of the 12th, followed by heavy or killing frosts on the mornings of the 13th and 14th. The winds continued as expected, and in most portions of the State the temperature did not fall so low as it would otherwise have done and was several degrees higher than anticipated. In the San Joaquin Valley, however, the wind lulled before sunrise of the 13th and the temperature fell in the vineyards as low as 27° . It was not, however, of long duration. Under ordinary conditions the fall would not have been dangerous, but the time was a critical one in the district under consideration, as the grape vines were in a tender condition. The first reports were to the effect that Malaga and seedless vines were injured beyond recovery, and would not sprout again, but that the Muscats would make a fairly good second crop. At the time of writing, however, it would seem that the first estimates of damage were entirely too large, and that the damage in general will not exceed 10 per cent of the anticipated yield.

Tree fruits were not materially injured. It was stated that throughout the Santa Clara Valley, portions of the bay valleys, and part of the Sacramento Valley, apricots and prunes suffered severely; but later reports do not confirm this view. The frost was neither severe enough nor of sufficient duration to do the injury estimated. Pears were hardly out of bloom when the frost came and were protected by their jackets. Almonds, apricots, and prunes had passed their most critical stage and, moreover, the minimum temperature in most orchards was not below 32° at the level of the fruit. Garden truck and fruit near the ground were damaged to some degree. Tomatoes, potatoes, and berries in low places and where not covered were injured; but all high-ground vegetation escaped injury entirely. Ample warning of the condition was given and in some places where protective methods were resorted to the results were satisfactory.

One of the most interesting features connected with the frost condition was the extreme dryness of the air in the interior valleys. It is not easy to explain the cause of the rapid drying of the air, as neither the season nor the general air movement warranted any unusual decrease in humidity.

TEMPERATURE.

The mean temperature for the State was nearly 2° below the normal, making the month, as above stated, one of the coldest on record. The following table gives the mean values for California during the time for which records have been kept.

The following table gives the means and departures for each April from 1897 to 1911, inclusive:

Years.	Mean.	Departure.	Years.	Mean.	Departure.
1897.....	60.6	+4.5	1905.....	57.2	+1.1
1898.....	60.9	+4.8	1906.....	56.3	+0.2
1899.....	58.1	+2.0	1907.....	58.2	+2.1
1900.....	53.9	-2.2	1908.....	58.4	+2.3
1901.....	55.8	-0.3	1909.....	57.6	+1.5
1902.....	56.2	+0.1	1910.....	59.8	+3.7
1903.....	54.8	-1.3	1911.....	54.2	-1.9
1904.....	57.2	+1.1			

The highest temperature reported at any station was 97° at Orleans on the 23d. This was 13° lower than the highest recorded in April, 1910. The lowest temperature at any station during April, 1911, was -2° at Summit on the 12th, which was 11° colder than the lowest recorded during April, 1910.

PRECIPITATION.

The average monthly precipitation for the State was 1.93 inches.

The following table gives the average and departure from the normal for each April from 1897 to 1911, inclusive:

Years.	Mean.	Departure.	Years.	Mean.	Departure.
	Inches.	Inches.		Inches.	Inches.
1897.....	0.51	-1.61	1905.....	1.18	-0.94
1898.....	.41	-1.71	1906.....	1.68	- .44
1899.....	.60	-1.52	1907.....	1.11	-1.01
1900.....	2.14	+ .02	1908.....	.67	-1.45
1901.....	2.16	+ .04	1909.....	.12	-3.00
1902.....	1.88	- .24	1910.....	.62	-1.50
1903.....	1.29	- .84	1911.....	1.93	- .19
1904.....	2.18	+ .06			

The greatest monthly rainfall was 8.65 inches, at Inskip. At 7 stations no rainfall was reported. The distribution of the rain geographically was far from uniform. The mountain sections had most of the rain. With regard to time distribution the period between the 5th and the 12th was the one in which most of the rain fell. The greatest 24-hour rainfall was 6.30 inches at Magalia, Butte County, on the 4th. Other heavy rainfalls were 4.55 inches at Nimshev, 4.25 at Inskip, and 4.15 inches at Branscomb.

Snowfall.—The month was one of more than average snowfall. There was a great deal more snow than for several Aprils past. The snow cover, which was unusually deep at the beginning of the month, increased slowly until about the 12th, and then steadily diminished until the end of the month. After the first decade there was a fairly uniform rate of melting of about 4 inches a day at elevations of from 5,000 to 7,000 feet. At the close of the month the snow cover was both extensive and deep, giving every indication of an abundant supply of water for the summer months.

SUNSHINE.

The following table gives the total hours of sunshine and percentages of the possible:

Stations.	Hours.	Percent- age of possible.	Stations.	Hours.	Percent- age of possible.
Eureka.....	192	48	Sacramento.....	279	70
Fresno.....	317	80	San Diego.....	244	62
Los Angeles.....	214	55	San Francisco.....	233	59
Mount Tamalpais.....	299	76	San Jose.....	284	72
Red Bluff.....	297	74	San Luis Obispo.....	251	64

EARTHQUAKES.

Earthquakes were reported at Brawley, 26th, 28th; in Loma, 28th; at Santa Clara, 6th, 11:49:36 p. m., period 1 second, origin 110.7 kilometers southeast; 10th, 10:51:15 a. m., period 1.5 seconds, origin 190.7 kilometers west, 30° 58' N., small tremors all day; 24th, 10:26:24 p. m., period 6 seconds, origin 157 kilometers east, 24° 21' N., light shock felt; 28th, 2:01:52 a. m., period 1 second, origin 212.5 kilometers west, 42° 16' N., second shock, 2:10:01 a. m., ended 2:11:30 a. m., many small tremors during day.

Berkeley: 19th, 12:20:19 p. m. Perceptible motion ended 12:23:05 p. m. The shock was very feeble, but was sharply marked on the seismogram. It originated at a distance of about 24 miles south-southeast from Berkeley. Magnified 80 times the earth motion (double amplitude) reached a maximum value of 1.75 millimeters. The second shock, a trifle feebler than the first, occurred at 9:40:48 p. m. Origin about 25 miles south-southeast. The third shock at 4:39:02 a. m. Direction and distance of the origin could not be determined. 21st, 6.45 p. m., feeble and no estimate of direction or distance can be made. 25th, a near shock at 10:27:24 p. m., with a magnification of 80 times a maximum earth shift of 2.5 millimeters was registered in the north-south direction and 2.25 millimeters in the east-west direction. The origin lay to the south at a distance of about 180 miles. 28th, 2:02:16 a. m., origin 1,700 miles from Berkeley; direction uncertain. The shock is feebly recorded here, indicating that it had no great strength at origin. The maximum earth shift registered was 1.5 millimeters, magnification 80.

Eclipse.—A partial eclipse of the sun was noted at San Francisco on the 28th, beginning about 3:05 p. m. and ending about 4:36 p. m. At San Diego the observer states that the moon's shadow caused an interruption of the record on the sunshine recorder between 3:53 and 4:07 p. m. Shortly after the eclipse afternoon clouds began to form. At Eureka a partial eclipse was observed at 3:50 p. m., at which time one-sixth of the sun's disk was dark; owing to cloudiness the beginning was not observed, but the last contact occurred at 4:24 p. m.

NOTES ON THE RIVERS OF THE SACRAMENTO AND SAN JOAQUIN WATERSHEDS DURING THE MONTH OF APRIL, 1911.

By N. R. TAYLOR, Local Forecaster.

Sacramento watershed.—While much less than the usual amount of rain fell during the month, all streams in this watershed carried more water than for any April since that of 1907, the year of the big flood.

Snow water was the controlling factor in the run-off of all watercourses, there being more snow on the ground in the high Sierras during April than for any corresponding month in many years. In the Feather-Yuba River system all streams were practically bank full during the entire month, and in some cases, notably, that of the Middle Fork of the Feather, freshets occurred.

The Sacramento River, below Knights Landing, averaged higher than for any month since that of February, 1909.

The American River was unusually full, being over 1 foot above the normal for the month and over 2 feet above the average stage usually maintained during the rainy season.

It is estimated that there was from 1 to 2 feet more water in the flood basin of the Sacramento River at the close of April than there was at the same time last year.

TABLE 1.—*Climatological data for April, 1911. District No. 11, Oregon.*

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.				Observers.	
				Departure from the normal.			Greatest daily range.			Total.			Departure from the normal.			Number of rainy days, .01 inch or more.					
				Mean.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Greatest in 24 hours.	Total snowfall, unmeasured.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.					
Oregon.																					
Klamath Agency.	Klamath.	4,169	3	44.7	-2.8	73	25	20	11	44	1.30	0.90	13.0	2	21	4	5	w. nw.	Edson C. Watson.		
Klamath Falls.		4,100	22	44.6	-2.8	78	22	14	12	42	1.10	+ 0.19	4.0	5	19	7	4	sw.	W. H. Heileman.		
Merrill.		4,070	5	42.9	-7.7	77	24	17	12	55	0.80	- 0.80		1	17	4	9	e.	Mrs. Agnes Ritchson.		
Yonna.		4,146	4	42.4 ^d	-7.3 ^b	73 ^b	23	10 ^c	12	42 ^c	1.13	- 0.70	1.0	5	14	5	5	w.	Jacob Ruecke.		
California.																					
Alameda.	Alameda.	1	55.0	-	74	19	40	12	37	1.10	-	0.00	0.0	2	7	15	8	nw.	Chas. E. Sears.		
Alturas.	Modoc.	4,460	7	43.8	-	78	24	13	12	49	0.97	-	5.0	2	15	10	5	sw.	Prof. C. B. Towle.		
Angiola.	Tulare.	208	11	58.2	-0.2	85	25	25	14	47	0.57	-	0.21	0.47	0	2	26	1	w.	Santa Fe Co.	
Antioch **	Contra Costa.	46	32	62.6	-2.9	84	29	41	20	50	0.34	-	0.61	0.34	0	1	25	0	e.	Southern Pacific Co.	
Aptos **	San Cruz.	102	26	55.7	+ 0.8	70	15 ^a	34	13	2.08	+ 0.19	1.70	0.00	4	15	5	10	nw.	Do.		
Arrowhead Springs.	San Bernardino.	2,000	2	66.0	-	83	17	55	29	18	0.95	-	0.26	0.00	5	12	se.	W. E. Moseley.			
Auburn.	Placer.	1,360	1	53.1	-3.4	79	18	33	12 ^a	33	2.03	-	1.18	1.28	0	3	20	e.	Southern Pacific Co.		
Avalon.	Los Angeles.	1	57.6	-	76	15	46	29	22	2.38	-	0.31	0.00	5	10	2	18	sw.	T. S. Manning.		
Azusa.		540	9	59.8	-	90	16	34	13	53	0.63	-	0.46	0.35	0	10			A. P. Griffith.		
Bagdad.	San Bernardino.	784	8	77.6	-	95	25	54	13	36	0.00	-	0.00	0.00	0				Santa Fe Co.		
Bakersfield.	Kern.	404	22	62.2	-2.5	87	26	37	13	35	0.51	+ 0.29	0.29	0.00	2	1	0	w.	Do.		
Barstow.	San Bernardino.	2,105	24	54.2	+ 0.2	72	15 ^a	37	12	26	1.56	-	0.28	1.45	0	4	14	2	sw.	E. L. White.	
Berkeley.	Alameda.	317	12	52.6	-4.8	86	25	35	13	46	1.01	+ 0.03	1.00	0.00	0	15	0	n.	State University.		
Biggs **	Butte.	98	13	52.6	-1.6	80	23 ^a	19	14	47	0.00	-	0.31	0.00	0	28	2	0	Southern Pacific Co.		
Bishop.		4,450	16	51.1	-	83	23	9	13 ^a	23	0.50	-	0.50	5.0	1	17	0	13	Paul E. Lodge.		
Bishop Creek.		8,500	1	34.5	-	73	23	25	12	42	6.28	-	3.55	1.0	7	14	4	12	Victor Hope.		
Blocksburg.	Humboldt.	1,700	5	49.3	-	80	23	32	12	42	0.00	-	0.00	0.00	0	19	7	s.	Southern Pacific Co.		
Blue Canon.	Placer.	4,685	12	45.7	-1.4	78	17	12	12	38	4.90	+ 1.13	2.10	11.5	7	15	7	8	Ray W. Ward.		
Blythe.	Riverside.	2	65.5	-	94	18 ^a	38	15	15	55	0.00	-	0.00	0.00	0	19	10	1	sw.	A. J. Haun.	
Branscomb.	Mendocino.	2,000	11	47.4	-	77	1	23	12	39	7.81	+ 2.90	4.15	0.8	7	19	6	5	M. D. Witter.		
Brawley.	Imperial.	-105	2	68.6 ^c	-	93	18	42	28	42	6.61	-	3.52	3.0	3	21	0	9	Cal. Gas & Elec. Co.		
Brush Creek.	Butte.	2,140	7	53.8	-	79	21 ^a	28	13	40	0.00	-	1.59	3.0	3	17	7	6	Mrs. M. D. Chambers.		
Burney.	Shasta.	3,300	1	46.4	-	81	23	14	12	49	3.06	-	0.00	0.00	0	23	4	3	N. J. Peck.		
Calaxico.	Imperial.	0	6	69.2	-	94	18	46	28	40	0.00	-	0.68	0.00	0	11	0		Southern Pacific Co.		
Caliente **	Kern.	1,290	35	62.5	+ 1.6	90	24	41	12	52	0.78	-	0.61	0.78	0	1	28	0	Do.		
Calistoga **	Napa.	363	30	50.4	-7.4	70	27	33	29	39	3.59	+ 0.71	2.65	0.00	5	11	0		F. M. Righter.		
Camptonville (near) §.	Santa Clara.	217	14	52.7	-2.0	78	17	31	11 ^a	40	0.60	-	0.36	0.30	0	2	17	9	nw.	Cal. Gas & Elec. Co.	
Cedarville.	Yuba.	3,500	4	52.4	-	88	24	26	12	42	6.67	-	4.05	0.00	0	10	15	7	8	John O. Ogie.	
China.	Modoc.	4,675	17	43.9	+ 1.6	75	1	12	40	1.74	+ 0.74	0.76	7.0	0	6	16	14	sw.	Southern Pacific Co.		
China Flat.	Butte.	189	41	56.8	-4.8	85	17	30	12	47	1.43	-	0.36	0.80	0	5	19	2	s.	T. H. Johnstone.	
Chino **	San Bernardino.	600	2	57.2	-	90	23	30	15	50	3.46	-	1.68	0.00	0	5	19	4	w.	G. H. Stephenson.	
Cisco **	Placer.	5,939	19	49.2	+ 3.0	65	17	14	12	52	0.71	+ 0.58	0.00	2	14	1	15	Do.	O. I. Westerburg.		
Claremont.	Los Angeles.	1,200	19	56.2	-0.9	81	16	37	13 ^a	38	1.26	+ 0.78	0.58	0	0	13	12	7	w.	F. P. Brackett.	
Cloverdale.	Sonoma.	340	8	54.8	-	85	17	33	12 ^a	43	2.84	-	1.57	0.00	0	23	2	10	John O. Ogie.		
Colfax.	Placer.	2,421	40	50.4	-3.0	78	22	32	12	46	4.10	-	0.32	2.24	0	8	18	1	s.	Southern Pacific Co.	
Colusa.		60	8	56.8	-	77	22	33	12	40	0.91	-	0.51	0.63	0	4	23	1	6	C. D. McCormish.	
Corning **	Tehama.	277	25	60.7	+ 0.4	85	23	40	13	50	0.58	-	1.04	0.40	0	2	22	0	8	Southern Pacific Co.	
Cuyamaca.	San Diego.	4,677	12	47.2	+ 3.3	69	18	29	27	27	1.79	-	0.05	0.78	0	7	16	3	11	L. L. MacQuarie.	
Daunt.	Tulare.	4,000	4	48.1	-	76	25	28	13 ^a	47	4.27	-	0.83	0.00	0	9	14	1	15	D. L. Wishon.	
Davisville.	Yolo.	51	39	54.4	-6.4	81	17	26	26	48	0.89	-	0.50	0.52	0	3	14	1	9	S. H. Beckett.	
Deer Creek.	Nevada.	3,700	4	44.8	-	74	24	20	12	41	6.89	-	3.81	2.0	0	7	19	2	9	Cal. Gas & Elec. Co.	
Del Monte.	Monterey.	564	7	76	10	35	13	36	66	0.66	-	0.24	0.00	5	16	3	11	w.	H. R. Warner.		
Delta.	Shasta.	1,138	26	57.4	+ 1.1	85	20 ^a	32	13	47	0.43	-	0.56	0.41	0	2	26	0	4	Santa Fe Co.	
Denair.	Stanislaus.	128	11	57.4	-	80	17	34	12	34	3.64	-	2.05	0.00	0	6	16	7	s.	Cal. Gas & Elec. Co.	
Dobbins (near).	Yuba.	1,650	7	56.6	-	80	17	34	12	34	4.16	-	2.83	1.0	0	7	19	3	8	W. H. Dudley.	
Dudleys.	Marijuana.	3,000	24	49.3	-	75	24	26	12 ^a	37	0.90	-	0.64	0.57	0	4	19	4	17	Southern Pacific Co.	
Dunnigan **	Siskiyou.	65	34	64.3	+ 1.9	80	17	48	10 ^a	47	3.70	-	1.02	3.39	0	7	16	0	14	Do.	
Dunsmuir **	Butte.	2,285	22	48.7	-0.3	84	17	29	12	44	1.44	-	0.59	0.90	0	2	17	5	8	R. W. Durham.	
Durham.	El Cajon.	160	18	56.8	-0.4	82	23	32	12	44	1.44	-	0.59	0.90	0	2	17	5	w.	H. H. Kessler.	
Electra.	San Diego.	482	12	57.9	-0.3	83	15	31	14	46	1.07	+ 0.38	0.36	0.00	0	5	18	7	5	Southern Pacific Co.	
Elsinore.	Amador.	725	7	59.0	-	84	17 ^a	33	13	42	4.70	-	2.45	0.00	0	7	22	2	6	A. F. Schult.	
Emigrant Gap.	Riverside.	3,222	12	50.4	-2.7	75	2	25	12	28	3.07	-	0.19	0.25	0	1	22	1	7	Southern Pacific Co.	
Escondido.	San Diego.	657	17	58.1	-0.2	83	15	32	15	51	1.38	-	0.07	0.85	0	5	27	3	w.	A. R. Moon.	
Eureka.	Humboldt.	64	25	47.7	-1.8	64	20	34	13	25	3.39	-	0.93	1.96	0	9	12	12	n.	U. S. Weather Bureau.	
Farmington **	San Joaquin.	111	32	57.6	-1.5	77	21	34	12	33	0.76	-	1.08	0.68	0	2	22	4	4	F. O. Hutton.	
Folsom.	Sacramento.	252	38	59.0	-	56	17	5	14 ^a	49	6.91	+ 2.03	3.36	54.0	10	15	5	10	E. R. Roening.		
Fordyce Dam.	Nevada.	6,500	18	32.9	-	56	17	5	14 ^a	49	6.91	+ 2.03	3.36	54.0	10	15	5	10	A. J. Burgi.		
Fouts Springs.	Colusa.	1,650	7	52.0	-	87	1	23	12	48	2.51	-	0.93	T.	7				U. S. Weather Bureau.		
Fresno.		293	24	59.0	-2.2	85	25	34	13	35	1.03	-</									

TABLE 1.—Climatological data for April, 1911. District No. 11, California.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.					Precipitation, in inches.					Sky.	Prevailing wind direction.	Observers.			
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmeasured.	Number of rainy days, .10 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
<i>California—Continued.</i>																			
Lake Eleanor.	Tuolumne.	4,700	1														O. J. Todd.		
La Porte.	Plumas.	5,000	17														Chas. W. Hendel.		
Le Grand.	Merced.	255	11	58.0	+ 3.2	80	24	36	28	39	0.40	- 0.45	0.40	0.0	1	22	1	7	
Lemon Cove.	Tulare.	600	16	60.6	- 1.6	89	16 [†]	33	13	43	1.51	- 0.22	0.98	0.0	3	16	11	3	
Lick Observatory §.	Santa Clara.	4,200	22	44.6	- 1.4	64	17 [†]	22	12	19	1.35	- 1.90	0.85	0.0	4	17	6	7	
Livermore.	Alameda.	455	40	55.1	- 1.8	84	17 [†]	30	12	44	0.89	- 0.55	0.47	0.0	5	14	6	10	
Lodi.	San Joaquin.	45	29	55.8	- 2.5	78	17	32	12	36	0.80	- 0.67	0.43	0.0	3	18	7	5	
Lone Pine.	Inyo.	2,728	6	55.2	-	82	23	30	15	44	0.00	-	0.00	0.0	0	30	0	0	
Long Valley.	Lesser.	4,400	2	45.8	-	75	24	15	12	42	0.53	-	0.33	1.5	3	9	7	14	
Los Angeles.	Los Angeles.	293	34	58.4	+ 0.8	81	15	45	28	31	0.28	- 1.08	0.12	0.0	2	9	8	13	
Los Banos*.	Merced.	121	24	60.7	- 2.7	75	3	40	14 [†]	0.32	- 0.29	0.22	0.0	2	20	1	9		
Los Gatos.	Santa Clara.	600	24	55.0	- 1.0	83	17	33	12	39	2.46	+ 0.27	1.83	0.0	6	20	1	9	
McCloud.	Siskiyou.	3,410	1	45.9	-	78	24	14	13	46	3.81	-	1.57	0.57	5	17	9	4	
Macdoel.	do.	4,258	4	40.8	-	74	24	12	12	48	2.23	-	0.20	2.0	2	14	2	14	
Madeline.	Lesser.	5,270	2	37.7	-	68	1 [†]	8	12	41	1.31	-	0.46	10.0	8	14	3	13	
Magalia.	Butte.	2,321	7	53.8	-	82	23	26	14	41	7.30	-	6.30	0.0	2	17	6	7	
Mammoth Tank.	Imperial.	257	33	60.6	- 14.8	85	25	40	1 [†]	35	0.00	-	0.06	0.00	0.0	30	0	0	
Marysville.	Yuba.	67	40	57.8	- 4.2	83	17	36	12	40	0.99	-	0.53	0.89	0.0	21	0	0	
Mecca.	Riverside.	-185	5	70.2	-	96	17	47	28	41	0.15	-	0.15	0.0	1	26	3	1	
Mendo Park**.	San Mateo.	64	33	56.6	- 0.5	74	17	38	13	42	0.92	-	0.58	0.92	0.0	1	24	0	6
Merced.	Merced.	173	37	56.0	- 4.0	79	25	31	13	35	0.43	-	0.63	0.33	0.0	2	18	7	6
Mill Creek No. 1.	Amador.	20	4	51.8	-	76	1 [†]	30	12	34	4.70	-	2.25	0.0	9	16	7	7	
Milton (near).	Calaveras.	660	20	55.2	- 3.4	75	17	33	13	28	1.51	-	1.18	0.0	4	18	9	3	
Modesto **.	Stanislaus.	90	39	64.6	+ 2.4	78	1 [†]	50	11	59	0.63	-	0.30	0.50	0.0	2	14	0	16
Mojave.	Kern.	2,751	34	55.0	- 4.7	72	24	34	3	34	0.50	+ 0.33	0.50	0.0	1	25	0	5	
Mokelumne Hill.	Calaveras.	1,550	18	53.6	+ 1.2	74	17	32	12	28	3.83	+ 0.65	1.58	0.0	6	16	5	9	
Mono Ranch.	Ventura.	3,210	5	49.4	-	78	18	28	15	42	0.59	-	0.48	0.0	2	18	7	5	
Montague.	Siskiyou.	2,450	23	47.7	- 6.6	83	24	26	15	51	1.20	+ 0.82	0.43	T.	0	15	7	8	
Monterey **.	Monterey.	15	46	53.8	- 2.0	68	16 [†]	40	23 [†]	0.57	-	1.02	0.32	0.0	3	24	4	2	
Monterio.	Kern.	4,500	12	47.9	- 4.3	70	25	28	12	26	0.76	-	1.23	0.32	0.0	5	17	10	3
Mount Tamalpais.	Marin.	2,375	12	48.4	- 1.1	72	17	30	12	23	1.51	-	0.49	1.15	0.0	8	17	4	9
Napa City.	Napa.	20	34	52.1	- 3.8	78	17	34	9	41	1.43	-	0.81	1.23	0.0	2	30	0	0
Napa (S. H.).	do.	60	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Needles.	San Bernardino.	477	19	71.8	- 0.4	93	24	50	14	33	0.38	+ 0.33	0.21	0.0	2	28	1	1	
Nellie.	San Diego.	5,350	2	-	-	-	-	-	-	-	2.20	-	0.75	0.0	6	-	-	-	
Nevada City.	Nevada.	2,580	19	49.4	- 0.4	81	24	23	12	45	4.46	-	2.84	0.0	10	16	4	10	
Newcastle.	Placer.	970	18	56.8	- 1.4	82	23	33	13	35	2.12	-	1.49	0.0	5	23	0	7	
Newhall**.	Los Angeles.	1,200	34	54.5	- 4.4	86	17	32	15	40	0.33	-	0.70	0.20	0.0	2	21	0	9
Newman.	Stanislaus.	91	22	66.0	+ 2.9	82	24	48	17	37	0.27	-	0.27	0.27	0.0	1	21	0	9
Nimshew.	Butte.	2,500	7	51.2	-	78	16	22	12	37	6.11	-	4.55	0.0	8	18	0	8	
North Bloomfield.	Nevada.	3,214	14	49.7	- 3.6	77	24	23	12	41	4.50	+ 0.56	1.98	0.0	6	18	9	10	
North Fork.	Madera.	3,000	7	51.4	-	79	23	30	12 [†]	37	4.23	-	2.47	0.0	6	9	18	8	
Oak Grove.	Stanislaus.	156	17	56.2	- 3.1	81	17	33	13	38	0.88	-	0.46	0.74	0.0	3	19	7	4
Oakland.	San Diego.	36	35	55.2	- 0.2	74	17	41	13	26	2.11	- 0.70	0.85	0.0	4	13	7	10	
Oceanside.	San Diego.	1	61.9	-	-	82	14	42	12	34	0.91	-	0.56	0.0	6	14	7	9	
Ojai Valley.	Ventura.	900	5	55.6	-	83	16	33	13 [†]	45	0.81	-	0.42	0.0	3	13	8	9	
Orland.	Glenn.	254	29	58.3	- 5.1	89	23	30	11	40	4.44	-	0.97	0.29	0.0	4	19	7	8
Orleans.	Humboldt.	520	8	59.2	-	97	23	30	13	52	4.06	-	1.46	0.0	8	15	7	8	
Oroville (near).	Butte.	250	27	57.4	- 3.3	84	17	30	11	38	1.88	-	0.39	1.35	0.0	4	15	2	13
Palermo.	do.	213	20	60.4	+ 1.9	96	21	29	19	49	1.25	-	0.41	1.25	0.0	1	6	19	5
Palm Springs **.	Riverside.	584	22	67.1	- 7.5	92	18	55	27	37	0.20	+ 0.20	0.20	0.0	1	22	5	3	
Pasadena.	Los Angeles.	827	21	56.8	- 3.3	83	16	37	13	42	0.71	+ 0.43	0.33	0.0	7	18	4	8	
Paso Robles.	San Luis Obispo.	800	24	53.8	- 4.1	84	18	29	14 [†]	46	1.41	+ 0.81	0.70	0.0	4	19	6	5	
Peachland.	Sonoma.	190	15	52.2	- 4.0	80	17	29	12 [†]	38	0.91	+ 1.70	1.72	0.0	7	16	10	4	
Penstock Camp.	Tuolumne.	3,750	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Pleasureville.	Eldorado.	1,875	22	54.0	+ 2.9	90	24	29	13	46	2.33	-	2.58	1.54	0.0	4	13	7	10
Point Lobos.	San Francisco.	250	18	52.6	+ 0.6	71	17	43	12	59	0.28	-	0.23	0.78	0.0	6	14	6	10
Point Keyes.	Marin.	490	19	49.4	- 0.8	65	20	42	12	57	0.92	-	0.65	0.75	0.0	5	10	7	13
Porterville.	Tulare.	484	22	60.8	- 3.2	89	27 [†]	32	13	49	1.14	+ 0.61	0.40	0.0	6	18	8	4	
Quincy.	Plumas.	3,400	16	44.0	- 3.6	76	23	16	28	46	3.84	+ 1.21	1.87	T.	5	22	4	4	
Red Bluff.	Shasta.	307	34	57.9	- 1.2	87	23	34	12	36	1.97	-	1.19	0.90	0.0	6	18	7	5
Redding.	Siskiyou.	552	35	58.4	- 1.8	86	23	31	12	36	1.97	-	1.04	1.14	0.0	4	19	5	6
Redlands.	San Bernardino.	1,352	18	57.4	- 3.7	84	17	37 [†]	42	48	0.68	+ 0.13	0.32	0.0	6	16	5	6	
Reedley.	Fresno.	347	11	59.1	- 1.6	85	25	32	14	41	1.02	-	0.48	1.02	0.0	1	23	0	7
Rialto (near).	San Bernardino.	2,250	5	54.7	-	79	17	38	12	35	1.44	-	0.61	0.80	0.0	8	13	7	10
Riverside.	Placer.	851	29	59.2	- 1.2	89	16	34	15	52	0.51	-	0.18	0.28	0.0	6	11	14	5
Rocklin.	Placerville.	249	40	56.8	- 3.6	80	18	34	14	36	1.35	-	0.52	0.95	0.0	3	25	0	5
Rohnerville.	Humboldt.	75	8	49.1	-	68	20	28	13	34	2.73	-	1.92	0.0	6	11	9	10	
Sacramento (1).	Sacramento.	71	34	55.7	- 2.3	78	17	41	28	30	0.66	-	1.62	0.65	0.0	3	19	7	4
Sacramento (2).	do.	35	56	56.6	- 2.7	76	17 [†]	38	28	32	0.87	-	0.88	0.61	0.0	3	18	8	4
St. Helena.	Napa.	255	3																

TABLE 1.—*Climatological data for April, 1911. District No. 11—Continued.*

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, indegrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<i>California—Continued.</i>																				
Sierraville.....	Sierra.....	5,000	1	42.5	—	74	23	11	12	42	1.87	—	1.10	0.0	4	13	7	10	sw.	C. D. Johnson.
Sisson.....	Siskiyou.....	3,555	22	45.0	— 2.0	75	4	21	13	42	2.02	— 0.82	0.85	6.0	6	20	2	8	n.	Southern Pacific Co.
Soledad **.....	Monterey.....	188	37	64.4	+ 7.1	83	5†	50	1†	—	0.10	— 0.55	0.10	0.0	1	19	0	11	n.	Do.
Southeast Farallon.....	San Francisco.....	30	8	50.2	—	56	9	46	27	7	1.00	—	0.66	0.0	7	14	6	10	nw.	U. S. Weather Bureau.
Sonora.....	Tuolumne.....	1,825	23	54.9	—	78	24†	32	12†	34	2.99	+ 0.30	1.67	0.0	4	18	7	5	nw.	Chas. P. Jones.
Squirrel Inn.....	San Bernardino.....	5,280	1	45.2	—	69	19	28	13†	30	1.26	—	0.48	0.0	5	13	8	9	s.	A. D. Frantz.
Stirling City.....	Butte.....	3,525	7	50.1	—	88	1	19	12	34	7.35	—	3.80	1.0	4	17	2	11	se.	Butte Co. R. R. Co.
Stockton (S. H.).....	San Joaquin.....	23	40	55.0	— 3.9	77	16	37	12	36	0.66	— 0.63	0.54	0.0	2	20	8	8	nw.	State Hospital.
Storey.....	Madera.....	296	11	54.2	— 2.6	81	25	29	17†	47	0.85	— 0.00	0.65	0.0	2	22	0	8	n.	Santa Fe Co.
Suisun **.....	Solano.....	20	31	58.0	— 1.9	73	1†	38	12	—	0.88	— 0.71	0.78	0.0	2	25	0	5	w.	Southern Pacific Co.
Summerdale.....	Mariposa.....	5,270	15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	J. H. Lowry.	
Summit.....	Placer.....	7,017	38	33.6	— 1.9	51	2	— 2	12	30	4.70	— 0.49	1.80	47.0	5	18	0	12	sw.	Southern Pacific Co.
Susanville.....	Lassen.....	4,175	22	43.8	— 3.5	73	24	13	12	38	1.52	+ 0.15	0.98	1.0	5	17	11	2	sw.	James Branham.
Tamarack.....	Alpine.....	8,000	5	29.8	—	53	26	7	15†	43	5.19	—	1.25	51.0	11	14	3	13	sw.	William Bennett.
Tehachapi **.....	Kern.....	3,964	34	51.6	+ 1.4	74	24	31	12	—	0.93	— 0.37	0.32	0.0	4	—	—	—	—	Southern Pacific Co.
Tehama **.....	Tehama.....	220	40	55.3	— 5.4	89	17	32	12	—	0.25	— 1.19	0.15	0.0	2	19	0	11	n.	Do.
Tejon Rancho.....	Kern.....	1,500	9	52.5	—	74	26	30	13	30	1.11	—	0.50	0.0	4	18	4	8	n.	S. E. Bailey.
Three Rivers.....	Tulare.....	870	1	58.2	—	85	25	34	13	38	1.88	—	1.27	0.0	4	14	8	8	sw.	E. D. Barton.
Towle.....	Placer.....	3,704	25	46.0	— 4.1	74	24	22	12	34	5.11	+ 0.58	2.00	0.0	5	19	2	9	—	Southern Pacific Co.
Tracy.....	San Joaquin.....	64	31	61.7	+ 0.8	78	17†	44	12	—	0.23	— 0.72	0.20	0.0	2	20	2	8	nw.	Do.
Ukiah.....	Mendocino.....	620	18	53.8	— 1.2	87	23	28	12	49	2.72	— 0.07	1.45	0.0	6	20	5	5	nw.	Dr. Geo. McCowen.
Upland.....	San Bernardino.....	1,750	14	57.4	—	85	15†	35	13	49	1.28	+ 0.08	0.82	0.0	5	15	10	5	w.	A. P. Harwood.
Upper Lake.....	Lake.....	1,350	26	54.6	— 0.0	86	24	30	12†	41	1.97	+ 0.04	0.98	0.0	6	18	4	8	nw.	C. M. Hammond.
Vacaville.....	Solano.....	175	23	55.4	— 3.6	84	17	28	12	47	1.65	— 0.79	1.49	0.0	6	17	12	1	sw.	G. O. Coburn.
Valley Springs **.....	Calaveras.....	673	22	58.4	— 1.8	82	22	41	13	—	2.63	+ 0.50	1.51	0.0	5	15	10	5	nw.	Southern Pacific Co.
Visalia.....	Tulare.....	334	23	62.2	+ 3.6	76	22	46	13	16	1.09	+ 0.43	0.37	0.0	4	12	12	6	n.	Santa Fe Co.
Warner Springs.....	San Diego.....	3,105	3	52.5	—	89	17	30	12	41	0.38	—	0.16	0.0	4	21	4	5	—	Mrs. F. S. Sandford.
Wasco.....	Kern.....	336	11	58.7	— 0.5	87	22	30	26	41	0.20	— 0.41	0.20	0.0	1	12	13	5	—	Santa Fe Co.
Watsonville.....	Santa Cruz.....	23	15	53.0	— 3.6	76	15	30	13	40	1.30	— 0.39	0.98	0.0	5	8	13	9	sw.	Spreckels Sugar Co.
Witchpec.....	Humboldt.....	1,700	1	48.0	—	89	23	22	12	39	6.93	—	1.60	5.0	9	20	5	5	s.	M. E. Lathrop.
Westley **.....	Stanislaus.....	90	22	60.9	— 3.3	78	24	42	27	—	0.15	— 0.52	0.15	0.0	1	26	0	4	n.	Southern Pacific Co.
Wheatland.....	Yuba.....	84	24	56.0	— 2.4	77	16†	34	12†	37	1.26	— 0.18	0.68	0.0	4	16	7	7	s.	Wm. Lumbard.
Willows.....	Glenn.....	136	32	56.0	— 4.3	81	17†	28	12	37	0.81	— 0.53	0.23	0.0	5	19	3	8	s.	M. T. Harrington.
Yosemite.....	Mariposa.....	3,945	7	49.9	—	82	25	24	12†	50	2.72	—	2.10	0.0	5	12	12	6	ne.	J. P. Kelley.

*, †, ‡, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

** Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.

† Also on other dates.

‡ Precipitation is less than 0.01 inch rain or melted snow.

Correction for the January, 1911, Monthly Weather Review.

On page 123, the total precipitation for "Yosemite" should read 11.39 inches.

On page 127, the total precipitation for "Willows" should read 7.20, and for "Yosemite" 11.39, inches.

TABLE 2.—*Daily precipitation for April, 1911. District No. 11, Oregon.*

TABLE 2.—*Daily precipitation for April, 1911. District No. 11—Continued.*

TABLE 2.—*Daily precipitation for April, 1911. District No. 11—Continued.*

TABLE 2.—*Daily precipitation for April, 1911. District No. 11—Continued.*

Stations.	Watershed.	Day of month.																												Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29		
<i>California—Cont'd.</i>																																
Upland.....	Coast.....	.82	.05	.09																												1.28
Upper Lake.....	Sacramento.....				.41	.98																									1.97	
Upper Mattole.....	Coast.....				.36	4.62	.20				T.	.30	.08	.12																7.47		
Vacaville.....	Sacramento.....				1.49	.01					.04	.06	.01																	1.65		
Valley Springs.....	San Joaquin.....					1.51	.91	0.01				.11	.09																	2.63		
Visalia.....	do.....					.37	.26					.29																		1.09		
Warner Springs.....	Coast.....	.16				.06	.08	.08																						0.38		
Wasco.....	San Joaquin.....	.20																													0.20	
Watsonville.....	Coast.....				.04	.98	.11					.11	.06																	1.30		
Weitchpec.....	Klamath.....				.03	1.50	1.60	.02				.21	1.60	1.18	.69	.05														6.93		
West Branch.....	Sacramento.....					.06	6.22	.03					.82	.14	.12	.06														8.21		
Westley.....	San Joaquin.....						.15																								0.15	
West Point.....	do.....					1.76	.65					.69	.23																	3.70		
West Saticoy.....	Coast.....	.36						.40																							0.76	
Wheatland.....	Sacramento.....						.40	.68	.04				.14	T.	T.															1.26		
Willows.....	do.....						.10	.22			T.	.11	T.																		0.81	
Yosemite.....	San Joaquin.....	.02					2.10	.25				.20	.15																		2.72	

* Precipitation included in that of the next measurement.

† Separate dates of falls not recorded.

|| Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures for April, 1911. Section Number 11, California.

Date.	Lakeview, Oreg.	California.																									
		Alturas.		Barstow.		Brawley.		Colusa.		Eureka.		Fresno.		Independ- ence.		Los Ange- les.		Mount Ta- malspads.		Nevada City.		Porter- ville.		Red Bluff.			
		Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.				
1.		44	31			77	38			72	49	52	49	69	52	72	46	60	51	62	42	74	43	78	56	86	50
2.		69	27			71	36			60	49	53	46	69	55	78	41	62	58	48	71	46	75	50	68	52	
3.		64	39			60	33			69	47	55	44	71	49	72	41	64	54	51	40	61	46	75	48	67	47
4.		49	34			33	38			64	50	52	45	71	47	72	38	65	54	47	42	48	41	75	44	54	51
5.		46	35			55	45			67	52	53	47	61	52	65	48	59	53	50	40	51	39	58	51	64	51
6.		55	34			57	30	83	53	62	48	51	45	70	52	68	43	65	54	53	40	63	39	75	48	63	50
7.		65	25			59	35	82	58	68	47	50	41	69	45	68	40	61	56	36	64	31	73	49	72	50	
8.		63	27			55	39	84	54	66	45	53	45	75	45	72	35	64	53	52	34	64	30	73	49	62	47
9.		55	32			44	38	86	51	63	43	54	43	69	48	69	42	63	52	45	37	52	40	77	45	61	45
10.		47	28			42	34	84	51	59	38	49	42	65	44	68	30	67	50	46	37	52	33	69	40	56	40
11.		40	26			42	30	88	56	59	38	47	36	62	44	66	34	65	49	42	30	51	34	67	39	56	40
12.		38	13			38	23	79	53	57	32	47	34	59	36	58	31	63	47	44	30	55	33	65	34	55	34
13.		39	18			58	25	79	52	62	40	50	34	64	34	57	37	68	45	52	34	62	24	68	32	60	41
14.		54	15			63	30	75	54	68	39	50	35	71	38	58	29	77	50	55	41	66	28	79	39	70	40
15.		65	16			67	31	83	49	73	36	56	35	76	43	67	29	81	50	65	49	71	26	78	40	78	43
16.		65	23			70	24	88	48	80	40	53	47	78	45	74	33	79	55	68	52	74	29	80	39	81	47
17.		68	24			74	36	91	53	81	31	55	44	82	50	76	40	72	48	72	56	77	36	85	41	82	50
18.		68	33			62	36	93	51	76	50	53	44	78	50	78	39	71	51	57	46	67	39	86	40	87	54
19.		52	23			66	30	90	50	74	49	52	39	70	44	68	39	67	52	66	45	61	29	81	42	68	52
20.		60	29			68	35	85	50	69	49	64	39	77	45	63	33	65	54	63	50	71	33	80	44	76	50
21.		68	28			71	34	86	50	73	48	52	48	78	48	70	33	66	54	57	45	72	33	83	41	74	46
22.		72	26			70	39	91	52	77	46	53	47	80	46	75	39	66	50	51	77	34	84	44	82	48	
23.		75	30			72	40	91	53	75	47	53	46	84	51	78	45	63	52	65	56	78	37	85	46	87	52
24.		78	30			78	40	90	55	74	49	50	47	84	51	78	46	63	55	63	48	81	38	85	47	80	53
25.		73	34			68	38	90	56	70	49	53	46	85	50	78	44	66	54	61	58	78	40	87	52	73	52
26.		63	38			45	31	84	55	67	46	48	46	57	47	70	45	59	51	39	35	45	39	64	50	56	46
27.		52	31			49	37	77	55	56	46	51	43	63	45	62	34	60	50	43	35	48	35	59	44	56	46
28.		49	32			60	33	80	42	68	48	51	40	65	42	62	33	63	45	52	35	56	29	57	36	67	48
29.		61	31			61	26	81	52	69	42	53	38	71	43	66	37	64	47	56	41	68	30	88	40	72	45
30.		64	27			58	37	87	53	67	46	52	45	77	44	69	38	70	48	54	35	67	34	89	41	70	48
Mns.		59.6	27.9			60.4	34.4	85.1*	52.2*	68.5	45.2*	52.6	42.8	71.7	46.2	69.2	37.9	65.7	51.1	55.1	41.6	64.3	34.6	77.8	43.8	68.7	47.1

California.

Date.	California.																									
	Redlands.		Sacramento.		San Diego.		San Francisco.		San Jose.		San Luis Obispo.		Santa Barbara.		Santa Rosa.		Slisson.		Stockton.		Summit.		Susanville.		Yosemite.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.	59	49	69	50	60	52	58	51	62	51	55	52	59	50	65	50	70	39	68	50	50	34	70	32	70	34
2.	59	49	63	49	62	53	54	49	66	45	59	50	61	47	61	46	72	30	66	50	51	35	67	32	74	37
3.	60	51	63	47	61	56	57	48	63	42	57	48	64	48	61	34	74	36	61	48	43	30	52	32	68	34
4.	63	50	55	49	62	54	56	51	64	49	53	49	50	59	48	75	35	69	50	30	25	48	35	59	34	
5.	60	50	61	50	62	55	59	50	67	52	55	51	53	54	60	52	66	26	60	52	34	28	33	51	35	30
6.	65	50	64	47	60	54	57	49	63	44	61	50	60	60	61	47	55	29	58	50	35	29	55	30	66	30
7.	61	51	65	44	62	53	57	47	62	40	60	49	67	50	62	35	58	29	61	43	27	57	29	68	32	60
8.	66	51	60	44	62	53	55	47	68	44	54	47	60	47	58	40	49	33	61	43	44	32	59	30	69	30
9.	65	50	60	48	63	52	59	51	63	45	61	48	64	50	58	47	50	30	57	52	28	46	30	59	39	60
10.	68	48	58	43	63	50	57	48	61	38	61	46	65	45	58	38	40	28	58	42	29	22	45	26	59	36
11.	67	41	57	44	63	48	55	45	57	41	58	48	69	43	57	35	39	25	56	45	28	22	44	31	57	27
12.	67	43	55	42	60	48	56	42	57	33	62	48	68	43	59	39	39	25	56	37	28	22	40	13	54	24
13.	73	37	59	45	62	44	61	46	63	33	65	44	68	44	64	34	45	21	58	38	32	18	43	16	60	24
14.	73	37	65	44	79	50	69	50	70	34	75	50	71	43	70	39	52	24	75	39	33	19	50	20	68	24
15.	79																									